09856121.122101

REMARKS

This Amendment is for the purpose of removing multiple dependencies from the claims and for placing the claims in appropriate U.S. format.

Respectfully submitted,

DYKEMA GOSSETT PLLC

John P. DeLuca
Registration No. 25,505

DYKEMA GOSSETT PLLC
THIRD FLOOR WEST - FRANKLIN SQUARE
1300 I Street, N. W.
Washington, D.C. 20005
(202) 522-8600

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

5. (Amended) A transmitter according to claim 3 [or 4], wherein the phase lock loop comprises:

a voltage controlled oscillator;

phase comparison means; and

summing and mixing means,

wherein the phase comparison means is arranged to receive the phase modulated intermediate frequency signal and a mixed signal output from the mixer means and to control the voltage controlled oscillator therefrom, and wherein the voltage controlled oscillator is arranged to output a constant amplitude phase modulated signal in response to the phase comparison means and wherein the summing and mixing means are arranged to sum the constant amplitude phase modulated signal with the RF signal fed back from the output of the output power amplifier means, and mix the resulting signal with the reference frequency signal to generate the mixed signal fed to the phase comparison means.

6. (Amended) A transmitter according to [claims 3 to 5] claim 3, wherein the phase modulation means further comprise:

binary modulator means arranged to receive the phase modulated RF signal and to be controlled by the baseband processing means to remove any 180 degree phase shifts introduced into the phase modulated RF signal.

7. (Amended) A transmitter according to [claims 3 to 5] claim 3, wherein the phase modulation means further comprise:

a second IQ modulator means arranged to receive the phase modulated RF signal and the baseband I and Q components and to further phase modulate the phase modulated RF signal with the baseband I and Q components whereby to remove any unwanted phase modulation introduced into the phase modulated RF signal.

10. (Amended) A transmitter according to [claims 7 to 9] claim 7, and further comprising

phase modulation synchronising means; and

respective in-phase and quadrature signal component delay means arranged to control the phase modulation performed in the second IQ modulation means;

wherein said phase modulation synchronising means is arranged to detect phase modulation errors introduced into the phase modulated RF signal and to control the delay means therefrom whereby to reduce modulation synchronisation errors in the phase modulated RF signal.

13. (Amended) A transmitter according to [any of the preceding claims] claim 1 wherein the conversion means further comprises:

a separate digital to analogue converter for each of the amplitude component, the In-phase component and the quadrature component of the input signal;

clock means for supplying a clock signal to each of the digital to analogue converters; and

conversion control means for controlling the conversion in response to a synchronising control signal from the synchronising means.

15. (Amended) A transmitter according to [claims 13 and 14] claim 13, wherein the conversion means further comprises:

a separate analogue interpolation filter for each of the amplitude component, the In-phase component, and the quadrature component of the input signal, each filter being arranged to receive the respective analogue representations of each input signal component.

16. (Amended) A transmitter according to [any of the preceding claims] claim 1 wherein the direct amplitude modulation means further includes power economy means.

21. (Amended) A transmitter according to [any of the preceding claims] claim 1, wherein the synchronising means further comprise:

phase detector means arranged to detect the phase of the RF output signal;

amplitude detector means arranged to detect the amplitude envelope of the RF output signal;

synchronisation detector means arranged to detect the synchronisation between the phase and the amplitude of the RF output signal; and

synchronisation control means arranged to control the conversion means on the basis of the detected synchronisation.

23. (Amended) A transmitter according to claim 21 [or 22], wherein an amplitude detector means further comprises:

an envelope detector for detecting the amplitude envelope; and

a differentiator arranged to receive the output of the envelope detector and differentiate the signal with respect to time.

09856121.122101